Claims

Please amend the claims as follows:

1. (Previously Presented) A device comprising:

a network interface for coupling to a network; and

a processor used for encoding voice data into data packets and coupled with the network interface, wherein the processor is adapted to:

establish a connection through the network for exchanging the data packets that represent voice between the device and a corresponding device;

determine a round trip time for data packets being exchanged through the connection using the same processor that encodes the voice data;

determine at least one performance parameter from transmitting a plurality of data packets along the connection using the same processor that encodes the voice data; and

determine a quality of service of the connection from the round trip time and the performance parameter.

2. (Original)   The device of claim 1, wherein

the performance parameter is determined from a voice sample delay at a ~~the~~ digital signal processing stage.

3. (Original)   The device of claim 1, wherein

the performance parameter is determined from a voice sample loss at a ~~the~~ digital signal processing stage.

4. (Previously Presented) The device of claim 1, wherein the processor is further adapted to:

determine a network connection impairment factor from the round trip time; and

determine a performance impairment factor by quantifying the performance parameter,

wherein the quality of service is determined from the network connection impairment factor and the performance impairment factor.

5. (Previously Presented) The device of claim 4, wherein

the performance impairment factor is determined according to silence, redundancy, interpolation and prediction characteristics of the data packets using the same processor that encodes the voice data,

the quality of service is determined by adding together the network connection impairment factor and the performance impairment factor.

6. (Original)   The device of claim 1, wherein the processor is further adapted to:

determine an updated performance parameter from transmitting a plurality of additional data packets; and

determine an updated quality of service of the connection from the updated performance parameter.

7. (Previously Presented) An article comprising: a storage medium, said storage medium having stored thereon instructions, that, when executed by a first device, result in:

establishing a connection through a network for exchanging data packets that represent voice between the first device and a second device;

determining a round trip time for data packets being exchanged through the connection;

determining at least one performance parameter from transmitting a plurality of data packets along the connection, the performance parameter determined in a same digital signal processing stage used for compressing or decompressing voice signals into the data packets; and

determining a quality of service of the connection from the round trip time and the performance parameter.

8. (Previously Presented) The article of claim 7, wherein

the performance parameter is determined from a voice sample delay at the digital signal processing stage.

9. (Previously Presented) The article of claim 7, wherein

the performance parameter is determined from a sample loss at the digital signal processing stage.

10. (Previously Presented) The article of claim 7, wherein the instructions further result in:

determining a network connection impairment factor from the round trip time; and

determining a performance impairment factor by quantifying the performance parameter,

wherein the quality of service is determined from the network connection impairment factor and the performance impairment factor.

11. (Previously Presented) The article of claim 10, wherein

the performance impairment factor is determined according to silence, redundancy, interpolation and prediction characteristics of the data packets in the same digital signal processing stage used for compressing or decompressing voice signals into the data packets,

the quality of service is determined by adding together the network connection impairment factor and the performance impairment factor.

12. (Original) The article of claim 7, wherein the instructions further result in:

determining an updated performance parameter from transmitting a plurality of additional data packets; and

determining an updated quality of service of the connection from the updated performance parameter.

13. (Previously Presented) A device comprising:

means for coupling to a network;

means for establishing a connection through the network for exchanging data packets that represent voice between the device and a corresponding device;

means for determining a round trip time for data packets being exchanged through the connection;

means for determining at least one performance parameter from transmitting a plurality of data packets along the connection, the performance parameter using a same digital signal processing stage used for encoding voice signals into the data packets; and

means for determining a quality of service of the connection from the round trip time and the performance parameter.

14. (Previously Presented) The device of claim 13, wherein

the performance parameter is determined from a voice sample delay at the digital

signal processing stage.

15. (Previously Presented) The device of claim 13, wherein

the performance parameter is determined from a voice sample loss at the digital signal

processing stage.

16. (Previously Presented) The device of claim 13, further comprising:

means for determining a network connection impairment factor from the round trip

time; and

means for determining a performance impairment factor by quantifying the

performance parameter,

wherein the quality of service is determined from the network connection impairment

factor and the performance impairment factor.

17. (Previously Presented) The device of claim 16, wherein

the performance impairment factor is determined according to silence, redundancy,

interpolation and prediction characteristics of the data packets in the same digital signal

processing stage used for encoding voice signals into the data packets,

the quality of service is determined by adding together the network connection

impairment factor and the performance impairment factor.

18. (Original) The device of claim 13, further comprising:

means for determining an updated performance parameter from transmitting a

plurality of additional data packets; and

means for determining an updated quality of service of the connection from the

updated performance parameter.

19. (Previously Presented) A method comprising:

establishing a connection through a network for exchanging data packets that

represent voice between a first device and a second device;

determining a round trip time for data packets being exchanged through the

connection;

Amendment   Page 5 of 12   Docket No. 2705-133
                                                                        Application No. 09/698,885

transmitting a plurality of the data packets along the connection;

determining at least one performance parameter from transmitting the data packets, the performance parameter determined in a same digital signal processing stage used for compressing and decompressing voice signals into the data packets; and

determining a quality of service of the connection from the round trip time and the performance parameter.

20. (Original) The method of claim 19, wherein:

the performance parameter is determined from a voice sample delay at a digital signal processing stage.

21. (Original) The method of claim 19, wherein:

the performance parameter is determined from a voice sample loss at a digital signal processing stage.

22. (Previously Presented) The method of claim 19, further comprising:

determining a network connection impairment factor from the round trip time; and

determining a performance impairment factor by quantifying the performance parameter,

wherein the quality of service is determined from the network connection impairment factor and the performance impairment factor.

23. (Previously Presented)   The method of claim 22, wherein:

the performance impairment factor is determined according to silence, redundancy, interpolation and prediction characteristics of the data packets in the same digital signal processing stage used for compressing and decompressing voice signals into the data packets,

the quality of service is determined by adding together the network connection impairment factor and the performance impairment factor.

24. (Original) The method of claim 19, further comprising:

transmitting additional data packets;

determining an updated performance parameter from transmitting the additional data packets; and

Amendment   Page 6 of 12   Docket No. 2705-133
                                                                    Application No. 09/698,885

determining an updated quality of service of the connection from the updated performance parameter.

25. (New)   A method comprising:

establishing a connection through a network;

exchanging data packets that contain voice data over the connection;

determining a round trip time for transmitting data packets over the connection;

determining at least one performance parameter associated with transmitting a plurality of the data packets over the connection;

taking into account how transmitting the data packets over the connection affect performance of a digital signal processing stage used for encoding or decoding the voice data when determining the performance parameter; and

determining a quality of service of the connection from the round trip time and the performance parameter.

26. (New)   The method according to claim 25 wherein a processor used for determining the performance parameter is a same digital signal processor used for encoding or decoding the voice data during the digital signal processing stage.

27. (New)   The method according to claim 25 wherein a processor used for determining the performance parameter is embedded in an edge device used for initiating a Voice Over Internet Protocol (VoIP) call over the network.

28. (New)   The method according to claim 27 wherein the edge device is a Voice Over Internet Protocol (VoIP) phone.

29. (New)   The method according to claim 25 including calculating the performance parameter according to a voice sample loss in the digital signal processing stage.

30. (New)   The method according to claim 25 including calculating the performance parameters according to a voice sample delay in the digital signal processing stage.

31. (New)   The method according to claim 25 including:

determining a network connection impairment factor from the round trip time for sending and receiving back the data packets;

determining a performance impairment factor by quantifying the performance parameter; and

determining the quality of service according to the network connection impairment factor and the performance impairment factor.

32. (New)   A network processing device, comprising:

a processor taking into account how transmitting data packets over a network effects voice samples in a digital signal processing stage when calculating performance parameters for the data packets and then determining a quality of service of the network from the performance parameters, the digital signal processing stage encoding the voice samples into data for the data packets or decoding the data from the data packets back into voice samples.

33. (New)   The network processing device according to claim 32 wherein the processor calculates the performance parameters according to a voice sample loss in the digital signal processing stage.

34. (New)   The network processing device according to claim 32 wherein the processor calculates the performance parameters according to a voice sample delay in the digital signal processing stage.

35. (New)   The network processing device according to claim 32 wherein a processor used for determining the performance parameters is embedded in an edge device used for initiating a Voice Over Internet Protocol (VoIP) call over the network.

36. (New)   The network processing device according to claim 35 wherein the edge device is a Voice Over Internet Protocol (VoIP) phone.

37. (New)   The network processing device according to claim 32 wherein the processor:

establishes a connection through the network for exchanging the data packets;

determines a round trip time for the data packets being exchanged through the connection;

Amendment   Page 8 of 12   Docket No. 2705-133
                                                             Application No. 09/698,885

determines a connection impairment factor from the round trip time; and

determines a quality of service of the connection from the round trip time and the performance parameter.

38. (New) The network processing device according to claim 37 wherein the processor determines the performance impairment factor according to silence, redundancy, interpolation and prediction characteristics of the data packets.